

The Columbia River

Improving Water Quality

Idaho DEQ, Oregon DEQ, Washington Dept. of Ecology, and US EPA Region 10
in coordination with the Columbia Basin Tribes
Joint Fact Sheet #5, Fall 2001

Columbia/Snake River Mainstem Total Dissolved Gas TMDLs

What is a TMDL?

Federal law requires states to identify sources of pollution (which includes TDG) in waters that do not meet water quality standards (WQS). States must determine how much pollution the waters can receive and *still* meet WQS – (also called a total maximum daily load or a TMDL). A TMDL defines the maximum allowed pollution for the water body and allocates pollutant “loads” among the sources.

The Columbia River basin covers a huge geographic region, reaching over 1500 miles from the Pacific Ocean on the Washington/Oregon coast to the mountains of British Columbia, Idaho, Oregon and Washington. Amazing regional diversity is present not only in land forms but also in culture, politics and economy. The Columbia/Snake River system harbors threatened and endangered salmon populations and also hosts the most extensive system of hydroelectric power generation in the nation.

Water quality studies have found that TDG levels in the Columbia River exceed the water quality standards established by Washington, Oregon, and the Colville Confederated Tribes.

Why is (TDG) a problem?

TDG occurs naturally in all water bodies. Supersaturation of the water column with dissolved gases may result from either natural or human induced conditions. Federal and private dams are a major source of high TDG levels in the Columbia and Snake Rivers.

High concentrations of TDG influence the health and survival of juvenile and adult migratory fish, resident fish and other aquatic life through the formation of air bubbles in tissue. This is known as gas bubble trauma, and is akin to the bends in humans. Spilling of water at dams along the Columbia and Snake Rivers results in high concentrations of TDG. Dams spill water for many reasons, including downstream juvenile fish passage, lack of power demand, and river flows in excess of powerhouse capacity. Fish populations have declined significantly. While there are many causes of this, degraded water quality is one of them.

Water Quality Standards

Numeric targets for TDG that represent achievement of the Oregon, Idaho, Washington, and the

Coville Confederated Tribes water quality standards are at a TDG saturation level of 110% which is not exceeded for river discharges up to 7 day, 10-year frequency flood flows. The TMDL will analyze modeling and historic data to ensure that standards are met for future flows, and will describe how to monitor progress towards that goal.

Special conditions have been created for voluntary spills from the Columbia and Snake River dams for purposes of fish passage. In Washington these special conditions have been included in the State Water Quality Standards rule, Idaho Department of Environmental Quality may grant variances on a case by case basis, and in Oregon the Environmental Quality Commission has granted variances on an annual basis.

Roles and Responsibilities

An inter-agency steering committee consisting of staff from the Idaho Department of Environmental Quality, the Oregon Department of Environmental Quality, the Washington Department of Ecology and the EPA has been formed to guide development of the Total Dissolved Gas (TDG) TMDL. A number of Columbia Basin Tribes also participate on the committee. The states will issue final TMDLs for TDG for the parts of the rivers for which they have jurisdiction. EPA will issue the TMDLs for the parts of the rivers that are in Tribal Reservations.

Lower Columbia Total Dissolved Gas TMDL

The geographic scope of the Lower Columbia Total Dissolved Gas TMDL includes the Columbia River Mainstem from below the confluence of the Snake to its mouth at the Pacific Ocean. Because the Columbia River forms the border between the states of Oregon and Washington, these two states are sharing development of this TMDL working closely with EPA and the Columbia Basin Tribes.

The final Oregon/Washington Lower Columbia TDG TMDL is scheduled for completion by March 1, 2002 and will proceed according to the following timeline:

- Public Workshop on TDG TMDL process and schedule – Summer 2001
- Oregon Draft TDG TMDL released to for informal public comment – Summer 2001
- Public Workshop on TDG TMDL process and schedule – October 29 & 30, 2001
- Formal public comments sought on Oregon/Washington Draft TDG TMDL – December 2001 – Winter 2002
- Formal public hearings on Oregon/Washington Draft TDG TMDL – Winter 2002
- Final Oregon/Washington TDG TMDL – Spring 2002

Mid-Columbia and Lower Snake River Total Dissolved Gas TMDL

This TMDL is an extension of the Lower Columbia TDG TMDL. The geographic scope of the Mid-Columbia/Snake River Mainstem TDG TMDL includes the Mainstem Snake River from the confluence of the Salmon River to its confluence with the Columbia River, and the Mainstem of the Columbia River from Lake Roosevelt to the Oregon/Washington border.

Washington will take the lead on developing the TDG TMDL for the portions of the Columbia and Snake that flow through Washington, and Idaho will take the lead on developing the TMDL for the portion of the Snake that flows through Idaho. Idaho will issue the TMDL for the Idaho portion. EPA will take the lead on developing the TDG TMDL for river segments that run through tribal lands.

The final Mid-Columbia TDG TMDL is scheduled for completion by December 2002. (The Lower Snake River TDG TMDL will take less time, and may be finalized as early as summer of 2002). These work efforts will complement one another and will proceed according to the following timeline:

- Public workshop on TDG TMDL process and schedule – October 29 & 30, 2001
- Draft Lower Snake TDG TMDL – Spring 2002
- Final Lower Snake TDG TMDL submitted to EPA – Summer 2002
- Draft Mid-Columbia TDG TMDL – Summer 2002
- Final Mid-Columbia TDG TMDL submitted to EPA – December 2002

For Notes/Workshop Materials or for More Information

Log onto the Internet at

[Http://www.epa.gov/r10earth/columbiamainstemtmdl.htm](http://www.epa.gov/r10earth/columbiamainstemtmdl.htm)

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